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THE DESCRIPTION OF THE VOICE OF BIRDS.

BY R. M. STRONG.

It was with no small interest that I followed a recent controversy¹ in 'The Auk' over the use of musical signs in describing the voice of birds. We have all read and heard much on this subject. We not only have a very difficult problem in the description of bird voice but we also have a lack of suitable terms for the sounds made by birds. There is, for instance, no really good word to designate single bird sounds except for the word note, which is unsatisfactory in several respects. After considerable study of various possible expressions, which might be used to designate sounds in general made by birds, I adopted "voice" as a term.

I have had an experience of twelve years with about twenty classes of university students in a course which included teaching bird voice. During that time, I have tried out various methods and the following account is a result.

It has been my experience that descriptions of bird voice mean very little until one has heard the performance or a good imitation of it. Then descriptions often help in an identification or assist in efforts to memorize the song. I have tried reproducing musical-scale records of bird songs on various musical instruments, but without getting anything that sounded like the bird's performance. Nor have I known anyone else who has had a different experience.

In conducting class work with birds, I have not found the use of musical scales or of modifications of them often practicable. I have been able furthermore, to teach people without musical ability to recognize many birds by their voice. Occasionally, students with sufficient musical ability and training to use musical-scale symbols occur, but even they have depended largely on other methods in my classes.

¹ Methods of Recording Bird Songs.

Moore, R. T. Auk. XXXII. Oct., 1915, pp. 535-8.

" " " XXXIII. April, 1916, pp. 228-9.

Saunders, A. A. Auk. XXXII. April, 1915, pp. 173-183.

" " " XXXIII. Jan., 1916, pp. 103-7.

" " " XXXIII. April, 1916, pp. 229-230.

It is my practice to subject the vocal performances of birds to analyses which may be employed with the voice of other groups of animals. In fact, some of my first ideas on the subject came from a study of methods used by Professor Reighard of the University of Michigan, in studying the voice of frogs and toads.

The following features are of first importance, in my experience, when the voice of a bird is heard for the first time: duration, quality, loudness, general pitch, complexity, accent, stress, and relation to known sounds.

Under duration, we note the time occupied by a vocal performance. If simply a chirp, for instance, we indicate whether it is short or relatively long. Longer performances are measured in seconds, the number of which is usually surprisingly less than would be estimated without timing.

Quality is of course important, and it may be described in many ways. One of the first things I have students do is to observe whether the sound is relatively musical or unmusical. Some bird sounds are not easily classed as either, but a great number can be so distinguished. Thus, I find no one hesitating to call the voice of the Wood Thrush musical and that of the Kingbird unmusical.

The first time I take up bird song with students, I discuss the relation of overtones to quality of sound and some other principles of physics pertinent to the subject. Such terms as rich, thin, bell-like, flute-like, resonant, reedy, metallic, rasping, harsh, etc., are helpful in describing quality. It is also very useful to make comparisons with other known sounds.

Under general pitch, we observe whether the voice is relatively high or low in pitch. As might be expected, the results are variable, but the effort is worth while in establishing associations for the student. Occasionally, students with sufficient musical equipment are encouraged to use musical scale symbols also. Any other system which the student finds practicable for describing pitch variations is encouraged. It is of course pointed out that birds do not sing according to the musical scale and that musical scale records are only approximate at best, especially because of variability in vocal performances.

Under complexity, are included some of the most important characteristics of bird voice. Is the vocal performance a single

note or do we have more than one note? If more than one note occurs, how many? Is the song relatively intricate or simple? Do the notes come in rapid succession? May they be grouped and how? The first notes of the song of the Song Sparrow, for instance, form a distinct group with a pitch, quality, loudness, and tempo which are exceedingly characteristic for the bird. They at once suggest the species to anyone familiar with the song, before the balance of the song is produced.

The description of that portion of the Song Sparrow's song which follows the opening group of notes is difficult, and very variable results are obtained by different students. Even though the attempts are not uniformly successful as descriptions of the song, the efforts involved are worth while for the student.

The occurrence of accents or stresses must be noted. I have found these especially important in studying the songs of warblers, for instance. The songs of the Robin, Red-eyed Vireo, Baltimore Oriole, Scarlet Tanager, and Rose-breasted Grosbeak are more or less indistinguishable to beginners. I find that the study of variations in accent, stress, and grouping of notes helps greatly in learning to distinguish the songs of these birds.

The song of the Winter Wren is notable for its unusual complexity and duration. As I have heard this song in northern Michigan and Wisconsin, a group of notes which occurs at the end is peculiarly characteristic and helpful in teaching others to learn to recognize the song. It consists of a series of very thin and rapidly repeated notes with a decided diminuendo at the end. There is a tendency to "sharp," i. e., to rise slightly in pitch towards the end of the series. The last notes at the ordinary distance one hears the song are barely audible, and the whole song seems to fade out into silence.

These methods are not only useful for students, but they are the only schemes which I have found worth while for my own studies of bird voice.